

CLAIMS

What is claimed is:

1. A continuous process for producing a reinforced, partially cured thermosetting polymer film comprising the steps of:
 - using a slot die and melt pumping system to coat a precise thickness of a thermosetting polymer which is free of volatile solvents and is capable of curing without generating liquid or gaseous by-products onto a continuous moving web;
 - impregnating a woven-glass fabric with a liquid thermosetting polymer as the woven-glass fabric passes over a coating device, wherein said thermosetting polymer is substantially free of volatile solvents and is capable of curing without generating substantial amounts of liquid or gaseous by products;
 - placing the impregnated woven-glass fabric on the top surface of the thermosetting polymer and consolidating to form a unitary film;
 - metering the thickness of the unitary film of the woven-glass cloth/polymer coating to the desired thickness using temperature controlled, precision machined and polished metal rollers;
 - passing the unitary film of the woven-glass cloth/polymer coating through a b-staging oven and partially curing the woven-glass/polymer coating using infrared heating elements;
 - passing the unitary film of the woven-glass cloth/polymer coating through a series of chilled rolls to cool the web;
 - placing a fluoropolymer release film on the top surface of the unitary film of the woven-glass cloth/polymer coating wherein the top release liner functions to protect the material from contamination and damage;
 - passing the unitary film of the woven-glass cloth/polymer coating through a set of edge cutters to trim the moving web to a precise width;
 - passing the unitary film of the woven-glass cloth/polymer coating through pull rolls wherein the function of said pull rolls is to provide control of the line speed and tension in the moving web; and

passing the unitary film of the woven-glass cloth/polymer coating through a sheeting station wherein an optical sensor detects the proper length of the sheet and activates a sharpened shear to cut the web in the width dimension, thereby completing the operation by producing sheets of B-staged prepreg.

2. The continuous process for producing a reinforced partially cured thermosetting polymer film according to claim 1 wherein the moving web consists of a polyester film coated on one side with a silicone release agent and the silicone release agent is on a first surface that is in contact with the coated polymer film.
3. The continuous process for producing a reinforced partially cured thermosetting polymer film according to claim 1 wherein the moving web consists of a kraft release paper coated on both sides with a polyethylene coating, and a silicone release agent is placed on a first surface that is in contact with the coated polymer film.
4. The continuous process for producing a reinforced partially cured thermosetting polymer film according to claim 1 wherein the moving web consists of a copper foil, and the copper foil has a thickness of at least $\frac{1}{2}$ oz (18 microns or 0.7 mils or 0.0007 inches).
5. The process of claim 4 wherein the copper foil has a thickness less than or equal to 6 oz (152 microns or 8.4 mils or 0.0084 inches).
6. The process of claim 4 wherein the copper foil has a thickness greater than 6 oz (152 microns or 8.4 mils or 0.0084 inches).